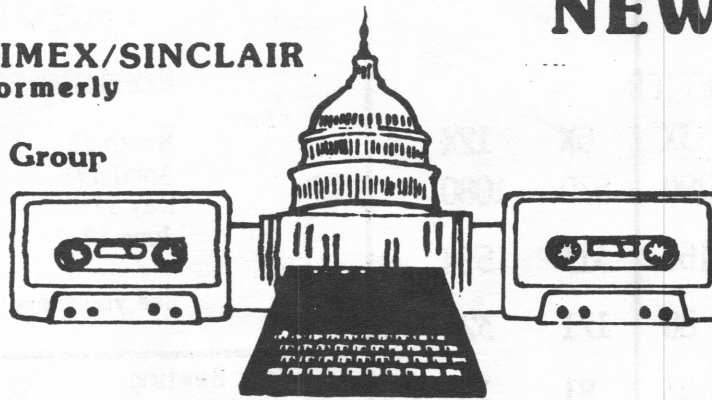


CATS

CAPITOL AREA TIMEX/SINCLAIR
 USERS GROUP :Formerly
 Prince George's
 Timex/Sinclair User's Group

NEWSLETTER



March, 1985
 Vol 2, No. 12

* * * CONTENTS * * *

My Word!	3	A Timex Calculator	12
IRSCALC	4	From the SOURCE	13
English Magazines	6	Data Statements	14
2068 ROM Bug	7	READ/DATA for the 1000	14
What Precision?	8	Loan Amortization	15
A Faster ProFile	9 - <i>DONE</i>	Spectrum Program RUN-test	16
New Computers	10	Spectrum to 2068?	17
MSCRIPT Review	11	Mass Storage	18

Scrolling 2068 16

PRESIDENT'S COLUMN

Welcome to the Renaissance!

In the last few months, all sides of the Timex/Sinclair world have been looking better than they have since Timex blew it last year. New vistas of programs are becoming reality, made possible by the Emulator boards, ROMswitches and U.S. distribution of Spectrum programs. U.S. program development is also producing results, both in hardware like the A&J micro-drive and disc interfaces by Aerco and others, and in software like MSCRIPT. On the printed front, Magazines that have stuck with Timex are seeing a renewal of interest and subscriptions. On a club level, user's groups are putting out more and better newsletters.

I suspect that there are two driving forces behind this movement. One, the programs and the development of new ideas, had never really stopped. Such development is always the work of a small minority of users, and their optimism was eclipsed by the popular discouragement. Two, the millions of original Timex owners included hundreds of thousands of folks that weren't committed to the Timex, or to any computer, for that matter. These are the folks that quit when it stopped being fashionable to own a Timex. The remainder aren't blind to the limitations of the Timex. They cope with them, either by improving their machines, as I did with the full-size keyboard I'm typing on right now, or by embracing polygamy, and buying a second computer that does some specific job better.

So, what does this mean for CATS? We need recruitment! There are still a lot (probably a

majority) of Timex users in this area that don't belong to CATS. We need them! If you're talking computers, let people know you've got a Timex. Odds are, they do also. Invite them to a meeting - encourage them to write up what they're doing to share.

That brings up the second point; write up what you're doing as well. See an interesting news clip? Send it in! Proud of a program you wrote? Send it in! Buy a good program (or baad)? Write a review! How about computer books? Bookstores? Supplies? Questions? All these things, and more, are best shared with the rest of us. Let us know!

Last meeting

The February meeting was held on a beautiful Saturday afternoon. In spite of the outdoor attractions, we had a good crowd. We started off with a discussion period, covering new developments. I displayed my total confusion between Tom Woods (SyncWare News, ProFile), and Dave Wood (Word*, Siriusware). Following that, Mihaly and Gyuri Grell gave a presentation of the Sanyo 555. They were very well prepared, and it looked like the "S" in CATS might end up standing for Sanyo by the time they were over. Following them, Chuck Fink demonstrated his T/S 1000 setup. He's got a T/S 1000, extra ROM, 64K RAM, full size keyboard, and a light pen, all inside a brief case. He's using the setup to administer a psychological test, and chose the Timex because it was the least intimidating computer around. Unfortunately, Mr. Fink was shortchanged on time due to my letting the discussion period run long, but he was able to demo the rest of the setup in the small group discussion period that ended the meeting.

continued on p. 2

1985

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SUBMISSIONS for this newsletter are eagerly solicited. First priority will be given to member's submissions. Publication of material does not transfer rights from the author, in fact, it may establish priority.

Submissions may be reviews, articles on applications, programming techniques, hardware, or anything else you can imagine. Pertinent articles from other publications will also be considered.

Bring material to the meeting, or send it to PO box 725, Bladensburg, MD 20710. I would prefer material to be typed, single spaced, in 3 1/2" columns - but don't break your back: the Xerox doesn't really care. Printouts from the 2040 printer are fine, but, use Radio Shack paper, and don't put scotch tape over the printing.

Permission is hereby granted for reprints of articles in nonprofit user group newsletters. Please give credit to CATS and the author.

IMPORTANT DATES:

Newsletter d/1	Meeting
March 15	March 9
April 19	April 13
May 17	May 11
June 17	June 8
	July 13

See you there!

Next Meeting

I'm going to try a different order of the meeting for March, with the discussion period following the presentations. As of this writing, Peter Geller will demonstrate how to install a switchable Spectrum ROM without a ROMswitch, and I'll do a small group on string slicing (just kidding - I'll probably do something on what (1=4) means to the Timex). In addition, I'll bring the newsletters the club's recieved, and take nominations for articles you'd like to see reprinted. If you've got something to present, either to the full meeting or small group, give me a call the week before the meeting.

Announcements

Ken Gordon Productions is putting on a Computer show and fleamarket on March 9&10, at the Sheraton in New Carrollton. We'll have 25 discount coupons, good for \$1.00 off, for members at the meeting.

CAST OF CHARACTERS

Editors	Mark Fisher
Mark Fisher	Sarah Fisher
Sarah Fisher	Bob Lussier
Advertising	Mike Morris
Jules Gesang	New York Times
Mailing	Sven Nilsson
Fishers	Roadl Schrack
Writers	Ward Seguin
John Conger	The SOURCE
Myron Criswell	Albert Strauss
Curry Computers	Timex
	Bill Ware

News from Jules

The April issue of the newsletter will include a guide to ZX81 / Spectrum program conversion. In addition we will publish a machine code version of the Tower of Hanoi puzzle for the T/S 1000. This puzzle was invented about 100 years ago by the French mathematician Eduard Lucas; it has developed into the most fascinating and enduring of all puzzles. Gesang Associates will offer a prize for the first three copies to be entered on tape and successfully run. The program will be added to the CATS program library tape. Rules, and listing, to come.



THE SOUL OF A NEW MACHINE

By Tracy Kidder (About \$3.50)

This Pulitzer Prize best selling paperback tells the story of how Data General Corporation acquired its state of the art minicomputer, a faster and more powerful machine than Digital Equipment Corp's VAX, using a dozen kids right out of engineering school and a dozen "old hands" over 25 and eight managers, some over 30. Everyone was underpaid and overworked, 60 to 80 hours a week being common. But the group manager, Tom West, and the team never had a mandate to design and build a new computer in the first place. They were the second stringers running the production engineering department, getting out the regular product line, while a select team to produce such a computer had been sent to a new research facility in N.C. Not to be denied, Tom West's team, stuck in a corner of the basement, poured blood, sweat and tears into their secret project - truly the soul of the new machine.

The author frequently lived with some team members and got inside their psyche so you can empathise with them in their fears, joys, highs and lows for the eighteen months the computer took shape. The reader may have a tendency to damn the corporation. Exploitation of the kids may stir your human rights sensibilities. But the kids had a ball. Nowhere else in the industry could they have such free rein to design and build a new leading edge 32 bit computer - one that would be compatible with all programs written for the existing line of 16 bit machines and would be better and faster and cheaper than the competition. With success, their professional futures would be made, not to speak of bonuses and stock options for some.

Of course they succeeded or there would be no book. (I can't wait for the movie.)

The team broke up when production began and the machine's fate was put in the hands of the sales department. Most went on to bigger jobs in the company; some to other challenges. Tom West moved up to an executive suite even before the debugging was completed, and when Data General bought a half interest in a major Japanese company, Tom was sent to Tokyo to teach the Japanese how to design and build computers!

This entrepreneurial team technique is not unique to Data General. IBM and Apple used it to produce the PC and the Macintosh. GE and GM are now using it. It's not even new. For over a hundred years Baldwin Locomotive Works had teams of erectors who would bid against each other for the work. If they beat their contract time and cost, they got bonuses; if they didn't, the loss came out of their pay envelopes. And the standard work day was 12 hours, six days a week. Every six weeks they had to switch to the night shift. (I wonder if their children went to work for Data General?)

The problem all these mature corporations are facing is the need to manage efficiently and show steady earnings growth while also developing innovative new products, which can be expensive. Wall Street and Harvard Business School are alike interested in how the mature corporation solves this problem. You could say Data General has no soul, but it does have a dandy new machine.

Any computerist worth his or her salt will want to read this book twice, as I did.

**** IRSCALC ****
Form 1040 and Sched. A on VU-CALC

Last month, we ran IRS1040, an expanded version of IRS2. At that time, I issued a challenge, offering to award a copy of Robert Master's book, VU-CALC and VU-FILE the Organizer, to the best implementation of a tax calculation on the T/S VU-CALC program.

...The envelope please... and, the winner is.... Albert Strauss! Here's the skinny:

An Overview

Spreadsheet programs have a number of things in common, differing in the more esoteric options. The basic structure imitates that of a paper spreadsheet - there are a number of cells that are organized into rows and columns - like stretched out graph paper. It is up to the user to define what information is put where. A paper spreadsheet contains two types of information, the column headings, and the data each column contains. Results, such as totals, are arrived at off the paper, and entered in designated cells.

The electronic spreadsheet does the same thing, with one major addition - the instructions to arrive at the results (the formulas) are associated with the cell where the result is to be entered. There are four main difficulties in understanding spreadsheets. One: there isn't enough room to show the formulas in the framework of the spreadsheet itself. In the program, the formulas are displayed only when the cursor occupies that cell. In the printed summary with this article, the formulas are referenced by index numbers in the array, with a table of the formulas themselves below. Two: another difficulty in understanding their operation, is that in the formula, the result is implicit: rather than typing (CELL X)=2+3 the formula is stated merely as 2+3, but is located in Cell X. Three: the variables are referenced in terms of their cell coordinates. A formula may read A01+B01. This means that the value in Cell A01 is to be added to the value in cell B01 - and the result is to be put in the cell where the formula is kept. Four: A formula may be relative or absolute. In the example above, the formula was absolute; the result of A01+B01 would be put wherever the formula was placed. If the same formula was built while in the C01 cell, and made relative, the formula would add whatever two cells were above the formula cell. There is an available function, (G)et, that will allow you to get a duplicate of the formula in the current cell, and place it in other cells.

Entering the Program

This program was designed and debugged using the T/S 1000 version of VU-CALC. It was drawn from the '84 version of IRS's form 1040. The formulas were derived from the written instructions on the form. example: on the 1040 form, line 45 reads "Add lines 41 through 44". This translated to K11+L11+M11+N11, placed in cell O11. It should be simple to put the same template into the 2068 version as well (in fact, easier, due to the presence of the Fill command). The overall tactic is to enter the column and row headings first, then the formulas.

As you look at the sample, you'll see a lot of zeroes. You don't need to enter them all, but it's a good idea. When you run the program, any formula that refers to a blank will stop the calculate sequence. There's an easy way to fill in the zeroes. Go to the entry menu, hit EDIT,,STOP, then ENTER. Now ENTER the following lines:

```
9500 FOR I=2 TO 8424 STEP 9
9510 LET B$(I)="0"
9520 NEXT I
9530 STOP
```

Use GOTO 9500, and in 30 seconds, B\$'s cells are all filled with zeroes. Before you go back to the program, DELETE the above lines. The machine code in VU-CALC depends on the data (held in B\$) to be at a fixed address; if the program is lengthened, B\$ will be bumped higher in memory.

Now go back to the program, using GOTO 1, and enter the headings, then the formulas. Move the cursor to the box occupied by the formula number, press (F)ormula, and enter the formula as shown in the accompanying list. Except as noted, all formulas are absolute, and not extended along row or column. Formula #19 is a little different. It is Set in cell G11, then picked up, using (G)et and (M)ake current, and (S)et in cells L13,H15, & J15. Formula 29 is the same (see the template). If you make an error in entering a formula: use (G)et then (C)hange to correct it. If you use the (F)ormula command again, the original formula will be discarded, and overwritten by the new, without being removed from the 40 formulas in memory.

Using IRSCALC

You can treat IRSCALC just as you would a paper 1040 form (just don't tear it up and jump on it). It has nearly every line that the '84 original has - in addition, it will do its own computations whenever you tell it to. To enter data, work your way carefully down the columns, entering your data. When you come to a cell

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
A 1040	AMOUNT	ADD 02	1040	AMOUNT	SCHED A	AMOUNT	SCHED A	AMOUNT	1040 COM	AMOUNT	1040 COM	AMOUNT	SSA	AMOUNT	A
B LINE 6E	0	0	LINE 24	0	LINE 1	0	LINE 20	0	LINE 33	0 (F15)	LINE 57	0	LINE 1	0	B
C WAGES 7	0	0 (F2)	BUS EX25	0	DOCT+ 2A	0	TAX FE21	0	L26 34A	0 (F16)	PREPAY58	0	2	0 (F29)	C
D INTST 8	0	0	IRA 26A	0	MED TR2B	0	MSC DE22	0	CONT 34B	0	INC CR59	0	3	0 (F30)	D
E DIVD 9C	0	0	KEOGH 27	0	MD OTH2C	0	TOT MS23	0 (F12)	SUB T 35	0 (F17)	PAID 60	0	4	0	E
F ST REF10	0	0	SAV PN28	0	TOTL 3	0 (F6)	24	0 (F13)	*EXMP 36	0 (F18)	EX SS 61	0	5	0 (F31)	F
G ALIM+ 11	0	0	ALIM- 29	0	.05 IN 4	0 (F7)	STAT 25	0	TX INC37	0 (F19)	GASCR 62	0	6	0 (F32)	G
H BUSIN 12	0	0	C DED 30	0	TOT MD 5	0 (F8)	TOTL 26	0 (F14)	*TAX* 38	0	INV CR63	0	7	0 (F19)	H
I CAP GN13	0	0	TOTAL 31	0 (F4)	ST+LTX 6	0	0	0	TAX+ 39	0	TOT PY64	0 (F26)	8	0	I
J CAP GN14	0	0	32	0 (F5)	RL ESTX7	0	0	0	TOTTAX40	0 (F20)	OVERPY65	0 (F27)	9	0 (F19)	J
K SUPPGN15	0	0	0	0	SALEST8A	0	0	0	CHDCR 41	0	REFUND66	0	10	0 (F30)	K
L TAX PN16	0	0	0	0	AUTOTX8B	0	0	0	DISCR 42	0	NEXTY 67	0 (F19)	11	0	L
M TAXAN17B	0	0	0	0	OTHER 9	0	0	0	ENERCR43	0	YOUOWE68	0 (F28)	0	0	M
N RENTS 18	0	0	0	0	TTL TX10	0 (F9)	0	0	POL CR44	0	0	0	0	0	N
O FARM 19	0	0	0	0	MORT 11A	0	0	0	TOT CR45	0 (F21)	0	0	0	0	O
P UNEMP20B	0	0	0	0	MORT 11B	0	0	0	46	0 (F22)	0	0	0	0	P
Q TX SS21B	0 (F1)	0	0	0	CRDIN 12	0	0	0	FORGN 47	0	0	0	0	0	Q
R OTHER 22	0	0	0	0	OTHER 13	0	0	0	BUS CR48	0	0	0	0	0	R
S TOTAL	INCOME23	0 (F3)	0	0	TOTIN 14	0 (F10)	0	0	TOT 49	0 (F23)	0	0	0	0	S
T 0	0	0	0	0	CONT 15A	0	0	0	SUB 50	0 (F24)	0	0	0	0	T
U 0	0	0	0	0	CONT 15B	0	0	0	SE TAX51	0	0	0	0	0	U
V 0	0	0	0	0	CONT 16	0	0	0	MINTAX52	0	0	0	0	0	V
W 0	0	0	0	0	CARRY 17	0	0	0	INV TX53	0	0	0	0	0	W
X 0	0	0	0	0	TOTL C18	0 (F11)	0	0	SS TAX54	0	0	0	0	0	X
Y 0	0	0	0	0	THFT L19	0	0	0	IRATAX55	0	0	0	0	0	Y
Z BOTTOM	0	0	0	0	0	0	0	0	TOTTAX56	0 (F25)	0	0	0	END	Z

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

F1 L15
 F2 B03+C02 (relative, to row R)
 F3 R03
 F4 B05+C05+D05+E05+F05+G05+H05
 F5 S03-I05 *D E*
 → F6 B07+C07+E07+F07
 F7 J05*.05
 F8 (F07>G07)*(F07-G07)
 → F9 I07+J07+K07+M07 +*Lo7*
 → F10 O07+P07+Q07+R07
 → F11 T07+U07+V07+W07
 F12 B09+C09+D09
 F13 H07+N07+S07+X07+Y07+E09
 F14 (F09>G09)*(F09-G09)
 F15 J05
 F16 H09
 F17 B11-C11-D11
 F18 B02*1000
 F19 E11-F11 (relative)
 → F20 H11+I11
 F21 K11+L11+M11+N11
 F22 J11-O11
 F23 Q11+R11
 F24 (P11>S11)*(P11-S11)
 F25 T11+U11+V11+W11+X11+Y11

F26 B13+C13+D13+D13+E13+F13+G13+H13
 F27 -(Z11<I13)*(Z11-I13)
 F28 (Z11>I13)*(Z11-I13)
 F29 B15/2 (relative)
 F30 S03
 F31 C15+D15+E15
 F32 I07+H07

continued from p. 4

containing a formula, press (C)alculate; do not enter data. Entering a datum into a cell automatically clears the attached formula. To replace the formula, you must enter a new formula, using up one of the precious store (or do some manipulating of the data string, B\$). There is one other thing to keep in mind: one of the strengths of the electronic spreadsheet is that you can easily change values, and recalculate at the touch of a button. Due to the structure of this template, you must press (C)alculate at least three times in order for the revised values to percolate through the table (a different arrangement of cells would avoid this problem).

This project will amply repay your effort. Once again, many happy returns!

continued on p. 6

The Little Timex Has Its Fans Even Now

By PETER H. LEWIS

HELL hath no fury like a Timex-Sinclair owner whose computer has been scorned. The scurrilous comment in this column was that the little wedge-shaped Timex-Sinclair had finally found its true calling, as a doorstop. At least, that is what the folks at Commodore say, and Commodore is an honorable company.

Steven H. Kaye, who teaches science in Brooklyn, was irate. He responded with a spirited defense of his "ingenious little T/S 1000," and provided proof that for him, at least, it serves a higher calling. He said he has expanded the pokey little T/S 1000 from its original 2K toy status, and it now boasts 64,000 bytes of random access memory; a real keyboard instead of the virtually useless membrane board it was afflicted with at birth, a modem and a printer. One of its uses is to send personalized warning notes to the parents of his students, he said.

Mr. Kaye said about 100 devoted followers of the Sinclair have formed a life-support system for the machine, the Long Island Sinclair Timex Users Group. Its address is P.O. Box 438, Centerport, N.Y., 11721.

Also, he notes, the Zebra Electronics Bulletin Board in New York (718-296-2385) is dedicated to Timex-Sinclair users, and is so popular it is almost impossible to get through to it. (That may also be because the Radio Shack computer that runs the bulletin board conked out and is now being fixed. Try again a week from now.)

It Keeps On Ticking

Mr. Kaye suggests that one way to atone for the slur (canard is not quite the right word, since the T/S 1000 is a turkey, not a duck) is to list new products available for Sir Clive Sinclair's family of machines, including the Timex 2068 color computer, the Spectrum, the T/S 1500, which is an upgraded version of the 1000, and the new QL, for Quantum Leap (although some wags are already calling it Quality Lacking).

Stewart Newfield to the rescue. Mr. Newfield's company, Zebra Systems (78-06 Jamaica Avenue, Woodhaven, N.Y. 11421, telephone 718-296-2385) offers a free 48-page catalogue of products for the Timex-Sinclair line. One that is particularly interesting is a Koala Technologies graphics pad that Zebra has modified for the 2068.

The Spectrum is one of the most popular computers in Britain, and thousands of programs have been written for it there. There are several ways for owners of the Timex 2068 to modify their machines to run Spectrum software, and Zebra Systems has the details. Because of the weakness of the British pound against the dollar, the Spectrum software can be a bargain.

American-made programs are being developed as well. S. J. McMurray 3d of Brooklyn said he and his associate, Alan Poretsky, have written a program for the 2068 to ease the preparation of 1984 Federal 1040 income tax returns. The program, which has not been reviewed, is called "Spec-Tax" and is available for \$16.95 from Poretsky & Poretsky Inc., 521 Argyle, Brooklyn, 11218, telephone 718-489-5948 evenings).

Screen Burnout

Timex-Sinclair users refuse to give up the ghost, and the same goes for many overworked computer video display terminals (VDT's).

Ghost images may remain on the screen even when the computer is turned off. They are caused when phosphors, the little dots that glow while being hit with a stream of electrons, burn out from overuse. Their lifeless little bodies are "etched" onto the screen.

The etching problem also affects television sets used as displays for computers or video games. After months of heavy use, an image of, say, the Pac Man maze may remain on the set permanently.

Alas, there is no cure except to buy a new monitor or television set. The only prevention is to turn off the monitor or television, or at least turn down the brightness, before stepping away for an extended period.

But remember, monitors eventually wear out and can be replaced. Working on worn-out video screens could harm your eyesight, which cannot.

BiTs 'n Pieces

From Bill Ware, in Arnold MD; "...with the above program in the process of being listed in the machine, I apparently pressed Caps Shift and Symbol Shift together. Twice the machine scrolled this up so I copied it the second time. I wondered if I had it printing the ROM on the screen or something!"

Answer: Yes Bill, that's exactly what happened.

The Timex Tech manual, section 6.6.4, page 145, states: If you respond to a SCROLL? message using multiple keys such as Cap Shift/2 or Cap Shift/Symbol Shift, you will get strange results like dumping of the EDIT line with a "C" or "E" cursor, display of ROM data, or multiple SCROLLs. Stick to single key responses and you won't have any problems! Thanks, guys.

By the way, the program Bill referred to is a QSL card printer - we'll run it next month, when we get a printout on black ink paper, rather than blue (can't photocopy blue).

```
DEF FN US ERASE STRUCHARNO CLOS
E #BI DEF FN O ERASE ANBIN (ABS
)ABS (PEEK LIN OR THE DEF FN T C
AT STE FORMAT DEF F DEF FN CA CL
OSE #FORMA CLOSE #MOV OR ERAS OR
OPEN TCLOSE THERG OR VERIF INK
BEE FORMAT CIRCL OR IN THEN PAPE
ERASE FLAS)=BRIGH CLOSE #INVERS
OR OVE ERASE OU CLOSE #LPRIN CL
OSE #LLIS CLOSE #STO FORMAT REAB
IN DATSTR# RESTOR OR NE BEEP BOR
DE ERASE CONTINU OR DI STEP RE S
TEP FO ERASE GO T CAT GO SUCHR#
INPU CLOSE #LOABIN LIS CLOSE #LE
CLOSE #PAUS OR NEX CLOSE #POK O
R PRIN CLOSE #PLO CLOSE #RU DEF
FN SAV OR RANDOMIZ OR I AND CL O
PEN #DRA BEEP CLEAR ERASE RETUR D
EF FN COP INK DELET OR ON ER ERA
SE STIC THEN SOUNBIN FRE OR RESE
CLOSE #BHY65TGUNJU74RFCMKI83EDX
SZ
```

Resources

The T/S Connection, 3832 Watterson Ave. Cincinnati OH 45227.

T/S 1000 NEW in box @ \$37.50; ZX81, rebuilt by Sinclair, @ \$20.00 + more.

Gesang Associates Box 452, Randallstown, MD 21133 is offering a free Spectrum ROM with T/S 1000 programs @ \$15.00; also 80 column printers & interfaces for Timex.

+++++

HOW PRECISE IS THE TIMEX?

by Roald Schrack

The latest issue of BYTE has on p.223 an article discussing the number of digits of precision carried by the computer in a calculation. A set of programs is presented to allow you to determine the precision of your computer. The program below and the results of a run on the 2068 show that the precision of the Timex is at most 10-digits.

```
10 LET n=1
20 LET a=10
30 LET b=a+1
40 LET c=b-a
50 PRINT n;TAB 4;c
60 LET a=a*10
70 LET n=n+1
80 IF n<12 THEN GO TO 30
```

1 1 } results
2 1
3 1
4 1
5 1
6 1
7 1
8 1
9 1
10 0
11 0
n c

What if you want to multiply two numbers that will result in a product having more than ten digits?

If you want to do handle more digits a general purpose code is needed. The following code will multiply any two terms having any number of digits. I have used it to check the result of a procedure that took many hours on the world's fastest computer. The two terms to be multiplied are the prime factors of the largest number to be factored. See how long it takes your Timex to put them back together again. You will note that the product obtained is a very simple number.

The Jan. 1985 issue of Byte has an extensive article on page 211 about variable precision calculator programs.

Roald A. Schrack

PERIPHERALS

Those Cable Specialists

By PETER H. LEWIS

THE most prudent of computer buyers — studiously choosing just the right computer, the perfect printer, the ideal modem and monitor — can still trip over one of the least-talked about frustrations in personal computing: the cable problem. All those meticulously chosen parts may not hook up to each other because the connecting cables required for each are different in size or design!

The industry is notorious for its lack of standardization and nowhere is it more evident than in the hundreds of different cables required by computers and their collaborative equipment. Partly this variation is the result of the disarray in the industry and partly it is the result, according to computer experts, of manufac-

Custom cables can be ordered through many computer retail stores as well as from the cable specialists. The most helpful information to bring along is the manual for each piece of equipment to be linked by computer so a cable can be matched to its specifications.

Flying Floppies

More people are taking their portable computers with them on airplanes, and that means more computers and floppy disks are being hauled through such airport security devices as metal detectors and X-ray scanners.

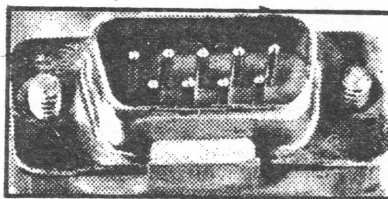
Some readers have asked if these security devices can harm their computers or somehow scramble or erase valuable data stored on floppy disks or bubble memories. The answer, according to officials of the Federal Aviation Administration, is no.

Dr. William Wall, an aviation security official at the agency's technical center outside Atlantic City, said the magnetic field generated by metal detectors at airports is very weak, typically 1 gauss. It was designed that way to avoid problems with people who have had pacemaker implants. It normally takes 200 to 300 gauss to damage magnetic storage materials such as tapes and magnetic disks, Dr. Wall said.

Likewise, the typical X-ray machine used to examine baggage at airports generates a very weak X-ray field, he said. The intensity of these X-rays is about 1,000 times less than levels that would damage solid state components and poses no threat to magnetic tapes, he said.

Anyone who still feels uneasy about exposing their equipment to security devices has a right to have it hand-inspected, F.A.A. officials say.

One possible threat to floppy disks may be from luggage conveyor belts. Floppy disks are susceptible to damage from magnetic fields generated by motors — including those of conveyor belts at airports.



Gene Maggio/The New York Times

turers deliberately designing their computers to run exclusively with their own printers, modems and monitors.

But every time the computer business appears to have thwarted the consumer a resourceful solution seems to come along. The answer to the cable problem takes the form of a small but booming custom cable industry.

One cable specialist, the Manhattan Electronics Corporation at 17 West 45th Street, says it employs 30 technicians at any given time to create cables that will join unmated equipment. They also keep busy producing cables of varying lengths for people who require something other than the standard.

Daniel Donnolo of Henricks Technologies, another cable specialist, (156 Fifth Avenue, suite 737) estimates that the usual price throughout the custom cable business is from \$25 to \$80 per cable.

The New York Times

PRO/FILE 2068 UTILITY AND
 *****THE INELEGANT SLUG*****

PRO/FILE 2068 by Thomas B. Woods is another program that requires loading two tapes to review, amend or add to previously SAVED data. Running time for the original tape is 1 1/4 min. and the data tape runs 3 min. for a total running time of 4 1/4 min. The enclosed program changes facilitate saving the program and the data on one tape so that it's only necessary to load one tape. The consolidated tape running time is 3 1/4 min. Considering the time to handle the second tape, actual loading time is cut in half, more or less.

The changes add two features, "verify" and "NEW". The verify option verifies the data and the program, both BASIC and machine code. The "NEW" option appears on the menu. It facilitates starting a new file without loading the original program again. The LOAD option is deleted from the menu. Tapes are LOADED in the command mode.

My inelegant slug is a 2 ounce chunk of lead. If you want to know what it's for, read on. The program changes, herewith, should be carefully typed and checked. Interrogate the computer with PRINT FREE. The response should be "37242". SAVE to tape and VERIFY. Now do the following:

KEYSTROKE RECIPE (#=ENTER)

- 1) LOAD "" (orig. P/F tape) #
- 2) EDIT (CAPS SHIFT 1)
- 3) STOP (SYMBOL SHIFT A) #
- 4) NEW # (clears all but M. C.)
- 5) LOAD "" (old P/F data tape) #
- 6) do steps 2 and 3 (BREAK OUT)
- 7) 6500 # (makes space in memory)
- 8) 50 # for p/f chgs)
- 9) MERGE "" (p/f chgs tape) #
- 10) GO TO 1 # (menu appears)
- 11) type: SAVE (to blank tape) #
- 12) as soon as save starts place SLUG on CAPS SHIFT key
- 13) when VERIFY prompt appears remove SLUG and verify.

To make a "bare bones" tape similar to the original (LOADS in 1 min.), do the following:
 A) do steps 2 and 3 above
 B) CLEAR : LET X\$="SAVE": LET F\$="PRO/FILE": GO TO 107 (blank tape in recorder) # C) do steps 12 and 13 above.

lines are deleted

1 REM pro/file © 1984 by Thomas B. Woods
 2 REM "p/f chgs" 12/15/84 M. Criswell

```

3 DELETE 106,106: DELETE 5500
,5510: DELETE 9997,9997: DELETE
3,3
4 IF PEEK 23653+256*PEEK 2365
4<60000 THEN PAPER 0: GO TO 9996
50 INK 6: PRINT AT 13,0;"Type:
""""A""";TAB 16;"to ADD to file
s""""SAVE""";TAB 23;"for tape"
""""AUTO""";TAB 17;"for AUTOSEARC
H""""DEFP""";TAB 11;"changes PR
INT format""""NEW""";TAB 12;"er
ases current file": BEEP .25,20
102 IF X$="DEFP" THEN : PRINT A
T 13,0;" : PLOT 120,70: GO
SUB 6500: INK 0: GO SUB 9830: I
NK 7: PRINT AT 10,7;A$; INK 0;E$
(1);E$(1);E$(1): GO TO 50
107 IF X$="SAVE" THEN PRINT AT
12,11; FLASH 1;"USE SLUG": SAVE
F$ LINE 8000: CLS : SAVE "p/f"CO
DE 63488,2046: GO TO 8100
108 IF X$="NEW" THEN GO TO 9996
5200 LET a=1: PRINT AT 13,0,, PA
PER 0; INK 7;" PRINT OUT? (Y/N)"
: INPUT Y$: LET Y=Y$+"Y
6500: PRINT INK 7;" ENTER DESIRE
D FORMAT. Type ALL", " or line nu
mbers; separated by", " ""/"". Use
""0"" to print blank", " lines."
: GO SUB 9830
8000 POKE 23730,255: POKE 23731,
247
8030 LOAD "p/f"CODE 63488,2046:
GO TO 1
8100 PRINT AT 12,10;"REMOVE SLUG
";AT 16,0;"Do you wish to VERIFY
? (y/n)": BEEP .25,20: PAUSE 0
8110 IF INKEY$="Y" OR INKEY$="y"
THEN PRINT AT 16,0;"Start recor
der and press any key": PAUSE 0:
CLS : VERIFY F$: VERIFY "p/f"CO
DE 63488,2046
8120 GO TO 1
9997 SAVE "p/f chgs"

```

Now about the "inelegant slug" (steps 12, 13 and C above): while the save is going on, balance your slug on the CAPS SHIFT key. Your slug can be anything that will hold the key down. It has to stay there throughout the SAVE. Otherwise, the SAVE will stop before saving the M.C. and the SAVE prompt will appear at about 3 min. into the save. The tape time will be increased by your reaction time to the prompt. When the SAVE is completed, the verify prompt will appear. The slug is not needed to VERIFY or LOAD the tape. I searched all the books I could find for a friendly POKE to replace my inelegant slug. If anyone knows one, I sure would like to hear about it.

HAPPY NEW YEAR

Myron Criswell
 Myron Criswell
 5805 30th Ave.
 Hyattsville MD 20782
 301 559 8699

Saved on back of pro/file. Free now 372A2

To break out of P/F, do Edit & Stop.

Possible use

NEW COMPUTERS!

The Winter Consumer Electronics Show is held each January in Las Vegas. It's where the major manufacturers of those devices known as "home computers" strut their stuff--show their latest products to dealers and the press. There are miles of exhibit frontage, and I walked most of it! This year, there was lots of impressive hardware on display; but the big news was: incredibly powerful, yet inexpensive computers aimed largely at the home market. Machines with 16/32 bit microprocessors are coming on strong--they offer more built-in memory and faster operation than the 8-bit computers that so far have dominated the home scene. They have super resolution, graphics and sound capabilities, plus "windows", the ability to show two or more separate displays on the same screen at once.

Sinclair

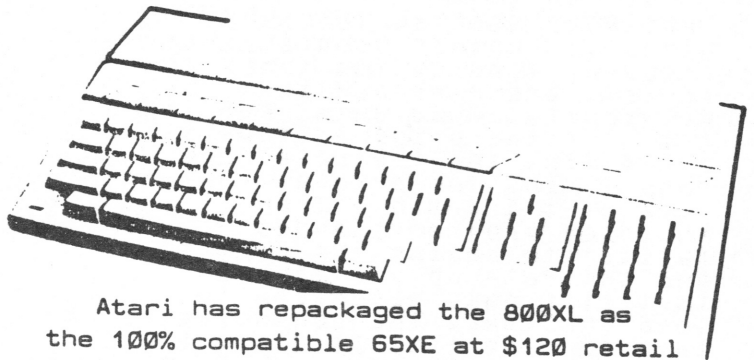
We've all heard about the portable, fast and powerful \$499 Sinclair QL. Since the 16/32 bit machine has 128K RAM (+640K plug-in), built-in software and windowing, it could be called "the poor man's Macintosh." We've also heard about some problems with the built-in microdrives and a "rubbery feeling" keyboard... Well, I put my shaky paws on one at CES, and I can report that the keys felt snappy and solid; and Sinclair now claims that the microdrive problems are solved. The rubbery keyboard has found a home in the new Spectrum+, which looks a lot like the QL on top, but feels cheap--you can't touch-type on this one.

Commodore

A 16/32 bit machine is also expected from Commodore, but the surprise they showed at CES was the Commodore 128, with three microprocessors (8502, Z80 and 6510A) giving it the ability to run all C-64 and CP/M software! It has 128K RAM, 40/80 column key, numeric pad and RGB/TV/Composite output. "About half the price of an IBM PCjr or Apple IIc."

ATARI® 130ST™

Atari



Atari has repackaged the 800XL as the 100% compatible 65XE at \$120 retail and the 130XE (128K RAM) for <\$200. New peripherals include a \$100 sharp, full-color thermal transfer printer! But Atari's big guns are two 16/32 bit computers for heretofore unheard-of low prices: the 130ST (128K RAM) for <\$400 and the 520ST (512K RAM) for <\$600. They have built-in I/O for serial/parallel, cartridge, hard disk, memory expansion, hi-res mono/RGB/Composite/TV mouse, and 3.5in. floppy disk (which starts at \$150). You would think that might be enough, but they have 192K ROM containing built-in software from business to games.

Coleco?

The "Adam Bomb" Fizzles: The Cabbage Patch dolls weren't enough to save Coleco from losing money last year. They blame the Adam computer, which hasn't been selling well. So, Coleco has pulled out of the computer business --going the way of T. I. and Timex. Curiously, they still had a big display at CES painting a rosy future--after announcing their demise!

-Sven



Commodore 128

MSCRIPT REVIEW

While we haven't yet used MSCRIPT ourselves, a world class word processor for the 2068 is long overdue for review. We herewith reprint an edited version of a review which appeared in the January issue of Computer Shopper. Next month we hope to have a review of the other contender, Tasword.

MSCRIPT is the word processing program originally scheduled for release by Timex, and is a 2068 version of a word processing program that is also available for other micros such as IBM, Apple, and Radio Shack. All the features found on those version (except disk related functions) are retained in this fast (MC) package. Features include: global search and replace, imbedding of printer codes, variable window size, full control of final printed form, headers, footers, and more. This program utilizes the 64 column capability of the 2068. Designed to work with the AERCO Centronics interface, MSCRIPT prints to a full size printer rather than the 2040.

The program LOADs in two parts: a title page and then the main portion of the program. Once LOAded, you see the main text entry/edit screen. This screen is black with a flashing "C" cursor in the upper left hand corner, and a line of information along the bottom. When the program starts, this screen is set to a 64 column window, with 22 lines from top to bottom. Line 23 shows you the current TAB settings. The 24th line displays the curret cursor position within the window. This line also reminds you how to access the HELP menu.

Most of your composing and editing will take place on the main screen, with the majority of the editing functions available without switching screens. The more sophisticated editing features are accessed directly from the text entry/edit screen using the FUNCTION simulation. Pressing FUNCTION-H will show you the list of FUNCTIONS available. FUNCTION-B allows you to mark the beginning and/or end of a block of text; FUNCTION-U unmarks blocks; FUNCTION-T moves the cursor to the first line; FUNCTION-E moves it to the last line; FUNCTION-I opens an insert block and FUNCTION-M mergers two blocks. The FUNCTION-I/FUNCTION-M combination is probably the most used set of editing features. When an insert block is opened and text is added, the merge function brings the text back together again.

Another powerful feature of MSCRIPT is the ability to imbed printer codes within the text. Since each printer has its own set of codes, MSCRIPT

allows you to define them and use the codes for your printer. You may also set or change many printing parameters directly from the entry/edit screen. You may change the line length, left margin, justification, centering. You can insert headers, footer, and page numbering as well.

A few editing procedures do occur from a screen designated the MSCRIPT Command Menu. The Command Menu is the place from which you LOAD and SAVE your documents. If you often send form letters that are created from a number of stock paragraphs you can load them one after another by using the APEND DOCUMENT command. Use the FIND STRING command followed by the CHANGE STRING command for global search and replace. The Command Menu also allows you to restart the program entirely.

The final screen is the MSCRIPT Print Menu. The current print values are shown and may be changed from this menu (remember they may also be changed from within the text). The parameters that may set from here are: justification, page length, left margin, line spacing, single sheet, page spacing, line length and page number. Pressing ENTER sends the document to the printer. MSCRIPT comes with the AERCO print driver built in.

MSCRIPT is available from 21st Century Electronics, 6813 Polk St., Guttenberg, NJ 07093 (201-869-2616).

NOTE: The first page of the manual explains the Timex adaptations of the FUNCTION and COMMAND keys, but one application seems to have slipped past. That is the ability to utilize the TAB functions. Even though the full use of TABs are well explained, including the setting of TAB, the TAB keyword on the Timex is inaccessible and the replacement function is not mentioned. The mystery is solved by the CAPS SHIFT/SYMBOL SHIFT combination used with the right cursor arrow; this accomplishes the TAB.

From the Abilene Timex/Sinclair User's Group Newsletter #3:

Here is a tip from Paul Maserang:

```
10 REM program X
20 BEEP .5,10
30 REM rest of the program
40 SAVE "program X" LINE 20
```

When saving a program to auto RUN by using LINE, if your first line is a BEEP, then you will be notified when your program is done loading.

2068 PRINTING CALCULATOR

This program will turn your Timex 2068 into a printing calculator. It should work on the Timex 1000 if line 100 is changed. The printer can be disabled by entering anything but y at the beginning of the program. The number input accepts positive numbers with any number of digits after the decimal point. Negative numbers and numbers in scientific notation with exponential powers of ten are not accepted. Successive operations are acceptable and may be mixed but the last operator acts on the result of all preceeding calculations, i.e., no hierarchy of multiplication over addition exists. The code accepts +,-,*,/ operations as well as the decimal point without having to hold down the extended mode key. The c key will delete the last digit entered to correct errors. The c key will not work on operators. Illustrations of the printing mode are shown below.

```
60 REM *****
62 REM *   Calculator Program *
64 REM *****
*
65 REM
66 PRINT TAB 7;"Calculator Program"; PRINT : PRINT
70 LET op=5
72 LET ln=0
80 PRINT "if you want listing enter y"
81 PAUSE 0
82 LET p=0
83 IF INKEY#<>"y" THEN GO TO 8
7
84 LPRINT
85 LPRINT
86 LET p=1
87 CLS
88 LET l=0
90 LET firstd=1
91 LET x=0
92 LET dp=0
93 LET dt=0
100 PAUSE 0
110 LET n#=INKEY#
120 LET c=CODE n#
130 IF c>=48 AND c<=57 THEN LET l=l+1: GO TO 200
140 IF c=77 OR c=46 OR c=109 THEN LET dp=1: PRINT "."; LET l=l+1
150 IF c=75 OR c=43 OR c=107 THEN PRINT "+ "; LET l=l+3: GO TO 300
160 IF c=74 OR c=45 OR c=106 THEN PRINT "- "; LET l=l+3: GO TO 400
170 IF c=56 OR c=42 OR c=98 THEN PRINT "* "; LET l=l+3: GO TO 500
180 IF c=86 OR c=47 OR c=118 THEN PRINT "/ "; LET l=l+3: GO TO 600
182 IF c=76 OR c=61 OR c=108 THEN PRINT "="; LET ln=ln+1: GO TO 700
184 IF c=67 OR c=99 THEN GO TO 900
199 GO TO 100
```

```
200 PRINT n#;
202 IF dp THEN GO TO 250
210 LET dt=VAL n#+dt*10
220 GO TO 100
250 LET dt=dt+VAL n#/10^(x+1)
260 LET x=x+1
270 GO TO 100
300 GO SUB 1000
320 LET op=1
330 GO TO 91
400 GO SUB 1000
410 LET op=2
420 GO TO 91
500 GO SUB 1000
510 LET op=3
520 GO TO 91
600 GO SUB 1000
610 LET op=4
620 GO TO 91
700 GO SUB 2000
704 PRINT d1
706 IF p=0 THEN GO TO 88
708 LPRINT TAB 20;"=";d1
709 LPRINT
710 LPRINT
714 GO TO 88
900 IF dp THEN GO TO 940
902 LET dt=dt/10
904 LET dt=INT dt
906 GO TO 960
940 LET dt=dt*10^(x-1)
942 LET dt=INT dt
944 LET x=x-1
946 LET dt=dt/10^x
960 PRINT AT ln,(l-1);" ";
962 PRINT AT ln,(l-1)
970 LET l=l-1
980 GO TO 100
1000 IF NOT firstd THEN GO TO 1040
1004 LET d1=dt
1005 IF p=0 THEN GO TO 1010
1006 LPRINT TAB 22;dt
1010 LET firstd=0
1030 RETURN
1040 GO SUB 2000
1050 RETURN
2000 GO TO 2000+10*op
2010 LET d1=dt+d1
2011 IF p=0 THEN RETURN
2012 LPRINT TAB 20;"+";dt
2014 RETURN
2020 LET d1=d1-dt
2021 IF p=0 THEN RETURN
2022 LPRINT TAB 20;"-";dt
2023 RETURN
2030 LET d1=d1*dt
2031 IF p=0 THEN RETURN
2032 LPRINT TAB 20;"*";dt
2033 RETURN
2040 LET d1=d1/10^dt
2041 IF p=0 THEN RETURN
2042 LPRINT TAB 20;"/";dt
2043 RETURN
2050 PRINT "incomplete expression"
2052 PAUSE 60
2054 CLS
2056 GO TO 60
9000 SAVE "cp" LINE 60
```

by Roald Schrack
12.89
+ 679.64
+ 19.56
+ 34.08
= 746.17

12.8906
* 45.8
= 590.38948

Tickling the SOURCE

The following is an example of what you could get if you had a MODEM, & subscribed to the SOURCE. The odd line spacing is due to the fact that the SOURCE is assuming an 80 column screen.

(C) COPYRIGHT SOURCE TELECOMPUTING CORPORATION 1984. ->

WELCOME TO THE SOURCE

- 1 USING THE SOURCE
2 TODAY
3 BUSINESS UPDATE
4 THE SOURCE MAIN MENU
5 WHAT'S NEW
6 COMMAND LEVEL

Enter item number or HELP 6

-> upi

UPI DATANEWS

Type HELP or QUIT at any time.

<N>ational, <R>egional, <S>tate news or <ST>op: n

<G>eneral, usiness, <S>ports, or <M>iscellaneous news: g

Keywords (press return for all stories): Sir Clive Sinclair

Enter starting & ending date - or press return for today: 12/20-

Searching..... One story found.

1 12-24-84 12:35 pes

Their bits are worse than their bytes LONDON (UPI) - Britain's two top computer kingpins swapped their brains for brawn in a Cambridge pub when a shouting match between them escalated into a barroom brawl. Sir Clive Sinclair, whose company makes the best-selling Spectrum computer, apologized Monday for his behavior in the Friday night fracas, which began when he slapped his rival Chris Curry with a rolled-up newspaper. Curry, a friend and former employee of Sinclair's, is now the head of Acorn computers, which manufactures the popular BBC Microcomputer.

The slugfest broke out at the Baron of Beef pub, where Sinclair confronted Curry about a newspaper ad for Acorn, in which the reliability of Spectrum products was questioned.

Sinclair, the 43-year-old inventor of the pocket calculator, said he called Curry "scum" and whacked him with a rolled-up newspaper, but does not remember actually hitting him.

Curry said Sinclair slapped him several times about the head and face.

Curry, 38, said he fled to a nearby wine bar with Sinclair, local chairman of the high-IO group ME NSA, in hot pursuit.

"I was forced to retaliate with a right-hand blow," Curry said.

"He was extremely aggressive and rude to me and he was calling me names," Curry said. "I tried to placate him but it was no good," he said.

We are on story 1. Type R, S, N, B, or G and a Story Number:

***** Unclassified *****

FOR SALE ZON-X Sound generator, for T/S 1000. Three channel sound chip, open for software control. Self contained, w/speaker, powered from bus. Perfect, new condition. Cost \$50.00, sell for \$30.00 589-7407.

FOR SALE: Dual DEC SSDD 5 1/4 disc drives, in case, with power supply. Ready to run, will work with the AERCO disc interface. \$210.00 firm. Mike Cohen 270-5991

FOR SALE: One complete working TELEX machine, with MODEM, printer, stand, and about 10 rolls of paper. Make offer. 202-363-2244 A. Pollock

FOR SALE: Sepctrum ROM 3, \$17.50. N. Vatch 301-661-6236

FOR SALE Spectrum ROM 3, \$17.50. T. Brooks 301-972-4541

Programming Tip

Using Data Statements

Data statements are handy places to store numbers or strings in a program. Using the READ statement information stored in data statements can be assigned to variables or arrays.

The manual points out that there can be a number of data statements in a program but they are treated as a single data list. A brief discussion of data statements is found on pages 108 and 109 in the 2068 manual.

If you know how many elements are in the data statements, you can write your program so that it is specifically instructed to read that fixed number of elements. If you don't know how many elements are in the data statements or you would like to keep the program general so that you can add additional elements in the future and still have the program execute, there is another way.

Suppose your data statements contain lists of items in your budget. For example:

```
10 DATA "Mortgage", "Food"
20 DATA "Doctor", "Medicine"
```

And suppose you are reading these into an array: A\$(x,y). Recall x specifies the element in the array and y specifies the length. In the above example, we have four elements the longest of which is eight letters long. READ A\$(1) would read Mortgage into this first array location, READ A\$(2) would read Food into the second and so on. Incidentally, the array A\$ would have to be dimensioned at the beginning of the program for the largest number of elements and the longest word you expect to enter into it sometime in the future.

The question is, how can you write a general DATA statement and READ it so that it will only read the number of elements in the data statements. Here's how. Write one more data statement that will always be your last: e.g.

```
50 DATA "End"
```

Then after each read, perform the following test:

```
60 READ A$(I)
70 IF A$(I,1 TO 3) = "End"
   THEN GOTO 99
80 LET I=I+1
90 GOTO 60
99 CONTINUE
```

Statement 70 compares the first three letters of each element. It is important to note that the statement --IF A\$(I) = "End"-- will not work because "END" in A\$(I) is 8 characters long, three letters followed by five blanks.

The above example allows you to read in all of your data and to stop reading when you encounter the word End. You can then use the value of I to tell you how many elements were in the DATA statements. If you add additional budget categories in the future, your program should accept them provided your initial dimension statements anticipated the largest number of elements and the longest word. A similar scheme can be devised if your DATA statements contain numbers.

Ward Seguin

Advanced BASIC for the T/S 1000
READ/DATA & DEF FN

Reading Ward's article reminded me that we had put out info on READ/DATA a while back. The following is an abstract of the August '83 article.

Yes: you can use READ/DATA and DEF FN on the T/S 1000. These two commands are useful additions to the 1000 programmer's bag of tricks.

READ/DATA

These statements can be simulated by a short subroutine, using string slicing. Practical applications of this technique have been published in this newsletter in IRS1040, IRS2, and BOGGLER. Here's the listing:

continued on p. 15

#####

Loan Amortization on the T/S

By Ward Seguin

Interest/year (6.5% = 6.5) = 10

Monthly Payment = 87.91

```

10 REM .. Program Amortization
20 REM .. Equal Payment
30 PRINT "Amortization Table"
40 REM Input Principal.
50 PRINT "Amount Borrowed= ";
60 INPUT P
70 PRINT P
80 PRINT "Number of years to p
ay= ";
90 INPUT Y
100 PRINT Y
110 REM Compute no. of months.
120 LET M=12*Y
130 PRINT "Interest/year (6.5%
=6.5) = ";
140 INPUT I
150 PRINT I
160 REM Monthly interest.
170 LET R=I/(100*12)
180 REM Equal monthly payments
185 LET M1=(1+R)^M
190 LET E=(P*R*M1)/((1+R)^M-1)
195 LET E=(INT (E*100))/100
200 REM Calculate & print
210 LET TI=0: LET TP=0: LET SP=
0
220 PRINT : PRINT
225 PRINT "Monthly Payment= ";E
: PRINT : PRINT
230 PRINT "Mo Principal Intere
st Princpl"
240 PRINT "No Owed Payme
nt Payment"
250 REM Printing dashes.
260 FOR K=1 TO 30: PRINT "-";
NEXT K: PRINT
270 FOR J=1 TO M
300 LET I1=P*R
310 LET P1=E-I1
320 IF J=M THEN LET P1=P: LET I
1=E-P1
322 LET I1=(INT (I1*100))/100
324 LET P1=(INT (P1*100))/100
330 PRINT J;TAB 5;P;TAB 16;I1;T
AB 25;P1
335 REM Computing totals.
340 LET TI=TI+I1
350 LET TP=TP+P1+I1
360 LET SP=SP+P1
365 LET P=(INT ((P-P1)*100))/10
0
370 NEXT J
400 REM Computing summary
totals
422 LET TI=(INT (TI*100))/100
424 LET SP=(INT (SP*100))/100
426 LET TP=(INT (TP*100))/100
430 PRINT
440 PRINT "Total Interest= ";TI
: PRINT
450 PRINT "Total Principal= ";S
P: PRINT
460 PRINT "Total Payments= ";TP
500 STOP

```

Mo No	Principal Owed	Interest Payment	Princpl Payment
1	1000	8.33	79.57
2	920.43	7.67	80.23
3	840.2	7	80.9
4	759.3	6.32	81.58
5	677.72	5.64	82.26
6	595.46	4.96	82.94
7	512.52	4.27	83.63
8	428.89	3.57	84.33
9	344.56	2.87	85.03
10	259.53	2.16	85.74
11	173.79	1.44	86.46
12	87.33	0.57	87.33

READ DATA

continued from p. 14

```

10 GOTO 90
20 REM **** READ SUB ****
30 FOR N=1 TO LEN D$
40 IF D$(N)="," THEN GOTO 60
50 NEXT N
60 LET T$=D$( TO N-1)
70 LET D$=D$(N+1 TO )
80 RETURN
90 REM MAIN PROGRAM
100 GOSUB 900
110 GOSUB 20
120 IF T$="END" THEN STOP
130 PRINT T$
140 GOTO 110
900 REM DATA SECTION
910 LET D$="FIRST,SECOND,THIRD,END"
920 RETURN

```

D\$ is the Data string, set up as in line 900.
T\$ is the transfer string, that carries the individual values back to the program. N is a counter; it can be used in other parts of the program. If you need more data elements, use LET D\$=D\$+"whatever," to extend it.

DEF FN

DEF FN can be a useful statement, allowing you to simplify listings when a complex formula is used several times. It essentially acts as a small subroutine, returning a value whenever invoked. On the T/S 1000, the VAL function can be used instead, as here:

```

10 LET X=40
20 LET Y=5
30 LET F$="X+Y"
40 PRINT VAL F$

```

Try changing line 30 to 30 INPUT F\$, and entering various formulas in X and Y. A practical example of this technique also appeared in IRS1040 & IRS2.

Mark Fisher

*m=1 will scroll line / time
m=2 will scroll whole screen ^{until end} of listing*

=====

SCROLLING THE 2068

=====

SPECTRUM/ROMSWITCH PROGRAM REVIEW

The following is the complete list of Spectrum/Romswitch Programs reviewed since December, 1984 (all reviews by Allan Pollock). The switch allows the 2068 owner to use the Spectrum 3 ROM inside the machine alongside the 2068 ROM. The Romswitch is available from Russell Electronics, RD 1, Box 539, Centre Hall, PA. 16828 for \$22.95 assembled.

The SCROLL operation in the 1000 can be obtained in the 2068 by:

POKE 23692,m

Try using m=1 and m=2 to see what the difference is.

```
5 LET m=2
10 FOR n=1 TO 100
20 PRINT n
30 POKE 23692,m
40 NEXT n
```

These programs ran:

- | | | |
|------------------------------|-----------------------|----------------------|
| The Alien Maze | The Black planet | Stonkers |
| Greedy Gultch | 3-D Tanx | Birds and Bees |
| Pandemonia | Space Intruders | Rabbit Shoot |
| Crawler | Earth Defence | Dominos |
| Orpheus | Halls of Things | Arcadia |
| Woods of Winter | Magic Mountain | Tasword Two |
| The Great Detective | Dictator | Test Match (cricket) |
| Zaraks | Dimension Destructors | Paint Box |
| Rescue | Nowotnik Puzzle | Screen Machine |
| Astron(mach. code Assembler) | Spectres | Schizoids |
| Ahhhh! | Trans Am | Make a Chip |
| Manic Miner | Spectrum Chess II | Backgammon |
| Atic Atac | Meteor Storm | Honace Goes Skiing |
| Jet Set Willy | The Forest | Survival |
| Im in Shock | Fighter Pilot | Music Typewriter |
| Draughts (checkers) | Night Gunner | Learn to Read 5 |
| Derby Day | Spectrum Voice Chess | Learning Box |
| Grand National | Learn to Read 1 | Pision-Horizons |
| Omega Run | Learn to Read 4 | |
| Spectral Invaders | Zip-Zap | |

These crashed:

- Sinclair ZX Chess
- T-S Gamma
- Spectrum Zeus Assembler
- Termi-Toy
- Chequered Flag
- Warlocks Treasure
- Gorgon
- Penetrator
- Galactic Patrol
- Stargazer
- The Knights Quest

WHY THOSE PROGRAMS CRASHED

In talking with Tom Bent, of Syncware News, I learned why a number of Spectrum programs won't run, even when operating with a Spectrum ROM in the 2068.

The circuits of the Spectrum includes 10K ohm pull-up resistors on both the data and address lines. It is these pull-up resistors that insure that Keyboard IN statements read 255 if no Key is pressed. (See Mike Morris' Spectrum/2068 Compatibility article in this issue.) These resistors can be added to the 2068, either on the circuit board, in Russel's ROMswitch, or on Dewey's Emulator board. This results in 100% success in running Spectrum programs.

MF

BOOK REVIEW

The Complete Spectrum ROM Disassembly by Ian Logan and Frank O'Hara is an annotated assembly language listing of the Spectrum ROM routines. With some additions and modifications to implement the improvements in capability made by Timex, all of the Spectrum routines can be found in the 2068 as well. The book is therefore valuable to any 2068 user who wants to know more about the operating system and has some familiarity with Z80 assembly language.

Using a 2068 disassembler to compare the 2068 to the SPECTRUM shows that not only are the main routines either exactly the same or very similar, they also occur in the same order - with the following differences:

- 1) Cassette handling routines in the 2068 are placed in the "extension ROM", and tape messages are in the main ROM starting at 15497(d), while the Spectrum has both located between 1218 and 2547(d).
- 2) Routines to handle 2068 plug-in cartridges (not in the Spectrum) are located between 6069 and 6468(d).
- 3) Other routines unique to the 2068 and which support functions not in the Spectrum are distributed throughout the main ROM.

Because of the differences cited above, a Spectrum program with a call to a ROM routine will not run on a 2068 unless the address is corrected. To find the correct address using the Spectrum ROM Disassembly, one may follow this procedure: Locate the Spectrum routine in the book; load a disassembler in the 2068; search the 2068 ROM for same routine. To assist in the search, the table below shows the starting addresses for the main sections of the Spectrum ROM followed by the corresponding address for the 2068.

Z80 Restarts	0000	(0000)
Token/Key Tables	0149	(0152)
Keyboard	0654	(0688)
Beeper	0949	(1011)
Cassette	1218	(ext. ROM)
Screen/Printer	2548	(1280)
Executive	4535	(3357)
Basic Interpreter	6728	(6469)
Graphics Commands	8374	(9731)
Expression Eval.	9467	(10324)
Math. Routines	11599	(12557)
Char. Set	15616	(15616)

The book is available from Zebra Systems for \$19.95.

It is not the case that all BASIC programs for the SPECTRUM will run as is on the 2068. The IN function will return different values when used to scan the keyboard. For example, with no keys pressed, the 2068 will return 31 while a SPECTRUM will return either 255 or 191 depending on the version. There are a number of books on the 2068 (including the owner's manual) which are in serious error since they assume version 2 SPECTRUM values also apply to the 2068.

Another difference in the BASIC is that the SPECTRUM has two symbols not in the 2068 standard set; TIMEX replaced them with the functions STICK and FREE. A program which tries to print the character codes 124 or 126 will produce symbols on the SPECTRUM and keywords on the 2068. SPECTRUM programs with machine code can run on the 2068 given two conditions: RAMTOP is set high enough in memory to accommodate the BASIC program, and no calls to ROM routines are made. Some SPECTRUM programs for the 16K machine will fail to run properly on the 2068 due to the former problem; e.g. PSIION's HORIZONS will not run on the 2068 unless you remap the RAM, or relocate the machine code to a higher address. The main problem is that the 2068 BASIC program area starts at an address which is several thousand bytes higher than for the SPECTRUM. If RAMTOP is set at -say- 32255, as is the case for the programs on the HORIZON's tape, then the 2068 has less than 6K bytes for the BASIC program while a 16K SPECTRUM will have over 8K free for the BASIC.

A machine code program with calls to ROM routines will not run as is. To make it run you must alter the addresses of the called routines. For example, if the SPECTRUM program calls the keyboard scanning routine at 026E(hex) this must be changed to 0688(decimal), which is the address of an equivalent routine in the 2068. The TIMEX ROM has all of the routines in the SPECTRUM (or a routine which is functionally the same) so the problem of conversion of machine code is relatively easy, if you make up a cross-index of ROM routines. The putting together of such an index is not easy but it has been done.

M.S. Morris

MASS STORAGE!

A&J Micro Systems are letting people know about their stringy floppy for the 2068. This copy is reproduced from the Curry Computer catalog - (5344 West Barff, Glendale, AZ.) Also available from Gesang Associates, Knighted Computers, etc.

L 2000 STRINGY FLOPPY SYSTEM

can I connect the Stringy Floppy to?

Model 2000 Stringy Floppy is compatible with the Timex 2068 Computer.

do you connect it?

nection of the Model 2000 Stringy Floppy is very easy. The system has an 18 inch 64 conductor flat cable the mating card edge connector attached to the end. Simply plug the card edge connector/cable assembly into the Circuit Board into the system bus connector. No modifications to the Timex 2068 are required to run the system.

do you use the Model 2000?

Model 2000 operating system patches the cassette routines to the drive. All you need to do to use the Model 2000 is insert the stringy floppy flag and file number inside the quotes of the file name in any save and load routine. The stringy floppy flag is the "@" symbol. The file number is any number from 1 to 9. An example of using a program with the name of TEST as the first file on your Micro Waler is: SAVE "@1,TEST". You must save files in order and file 3 cannot be saved until file 2 exists.

is the storage capacity of the Micro Waler it?

ow is a table of the available lengths, storage capacity, and run time for each of the Micro Waler II. The run time is equal to the time it takes the Micro Waler II to run one complete revolution. This means a 35" Micro Waler which holds 49K of data could load a 49K program in 42 seconds.

Length	Storage	Run Time
10"	14K	12 sec.
20"	28K	24 sec.
35"	49K	42 sec.
50"	70K	60 sec.
62"	85K	73 sec.

where does the operating system reside in memory?

ie Model 2000 Stringy Floppy operating system resides inside the Extension ROM area. This ROM had a 2K of unused ROM where we placed the bulk of our operating system. The remaining 100 bytes of stack pointers, and other bookkeeping functions reside from F000-F100. We also reset Basic RAM top to EFFF (4K bytes below the normal top).

820006	MODEL 2000 STRINGY FLOPPY II	\$ 199.50
	Includes Interface Drive, Expansion cartridge	
	Owner's Manual, 5 Micro Waler II, Waler Organizer	
830017	MODEL 2000 OWNER'S MANUAL	4.95
900001	16" MICRO WAFER II	4.25
900002	20" MICRO WAFER II	4.25
900003	35" MICRO WAFER II	4.50
900004	50" MICRO WAFER II	4.75
900005	62" MICRO WAFER II	4.75
950001	WAFER ORGANIZER (Folder holds 18 wafers)	5.00
950002	WAFER CADDY (Desk Top Tray Holds 6 wafers)	9.95
950003	WAFER WHEEL (Desk Top Wheel Holds 30 wafers)	18.75

Where does the power come from?

Power for the Model 2000 Stringy Floppy is taken directly from the Timex 2068. Our Model 1000 supplied its own power, but the 2068 has plenty of power to run our system.

Will I experience save and load problems like in the cassette?

No! Our system uses advanced digital circuitry to read and write data quickly and without errors. We write to our Micro Waler in a FM (Frequency Modulation) recording format. Frequency Modulation is the standard method used in floppy disk recording.

How will A&J Micro Drive support the Model 2000 Stringy Floppy?

A&J Micro Drive will support the Micro Drive by offering commercial software and hardware distributors incentives to convert to the Model 2000 system. We feel we have successfully started this process.

Will you release source code for the operating system?

Yes. The source code will be released. Releasing the source code will help commercial software developers program more efficiently with respect to the Model 2000 Stringy Floppy. It will also be helpful to those advanced home programmers in their development as well.

Are the Model 2000 and Model 1000 compatible?

No. The Model 2000 Stringy Floppy uses a new improved tape drive and tape. We choose to use the new system because it performs better than the older system. Also, the new drive and tapes are being used in other systems meaning the tapes will be available from more locations. Also, the greater volume of tape sales will decrease the tape price over time.

Why did A&J Micro Drive design a Stringy Floppy and not a Disk?

Price and ease of use for the customer. The disk interface WITH-OUT the first drive, power supply, cable will cost as much as a complete Model 2000 Stringy Floppy. The extras needed to run the disk interface will cost at least another \$250.00. Also, the Model 2000 is very easy to use and really nothing new must be learned to use the system.

Capitol Area Timex/Sinclair Users' Group
P.O.Box 725
Bladensburg, MD 20710

Name _____

Address _____

ZIP _____

Phone Home _____ Office _____

memberships - \$15.00 (family/individual); make checks payable to C.A.T.S.

If family membership, please list family members participating:

Occupation _____

Ham Radio call sign _____

Equipment

ZX 80 _____ RAM size _____

RA 80 _____ full keyboard _____

ZX 81 _____ Printer _____

TS 1000 _____ type _____

TS 2000 _____ other interface _____

Special interest use for computer: ie, games, ham radio interface,
business, other, etc. _____

Languages: Basic _____ Other _____

Machine _____

No. of years computer experience _____

What committees would you like to serve on? _____

Comments: _____

Do not write below:

Dt. Pd. _____ Amt. _____ Membership No. _____

Ca. _____ Ck. _____

Ham Radio Network Information
 QZX Net... Wednesdays, 9p.m. local time; 14.345 MHz NU4F NCS
 Eastern Regional Sinclair Net... Sundays, 1600 Z; 7.245 MHz
 K0ZF NCS

Meetings are held on the second Saturday of each month at 2
 P.M. in the large meeting room of the New Carrollton Branch
 Public Library.

301#922-0767

The official contact person for CATS is JULES GESANG:

CATS is a non-profit special interest organization dedicated to
 serving the interests of those who own, use, or are interested in
 learning more about the Timex/Sinclair family of personal
 computers.

Bladensburg, MD 20710

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Capitol Area Timex/Sinclair User's Group

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